

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
2 December 2004 (02.12.2004)

PCT

(10) International Publication Number  
**WO 2004/103764 A1**

(51) International Patent Classification<sup>7</sup>: **B60N 2/235**

Automotive Private Ltd., #16 Vishweswaraiah Industrial Estate, Mahadevapura, 560 048 Bangalore (IN).

(21) International Application Number:  
PCT/IB2004/000072

(74) Agents: **LAKSHMIKUMARAN, Varadhachari et al.**; Lakshmikumaran & Sridharan, B-4/158, Safdarjung Enclave, New Delhi 110029 (IN).

(22) International Filing Date: 7 January 2004 (07.01.2004)

(25) Filing Language: English

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(26) Publication Language: English

(71) Applicant (*for all designated States except US*): **IFB AUTOMOTIVE PRIVATE LIMITED [IN/IN]**; #16 Vishweswaraiah Industrial Estate, Mahadevapura, 560 048 Bangalore (IN).

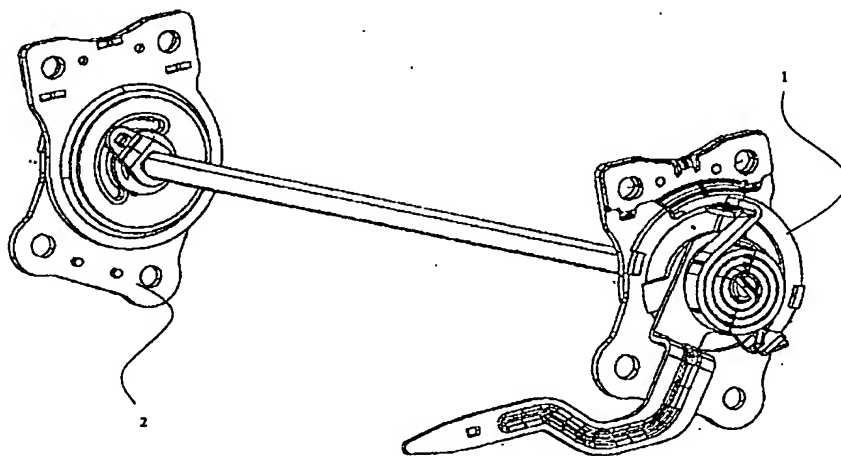
(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **NAG, Bijon [IN/IN]**; IFB Automotive Private Ltd., Plot # Ind-5 Sector-1, East Kolkata, Township, 700 017 Kolkata (IN). **REDDY, Manyam, Hemadri [IN/IN]**; IFB Automotive Private Ltd., #16 Vishweswaraiah Industrial Estate, Mahadevapura, 560 048 Bangalore (IN). **RAMALINGAM, Muthusamy [IN/IN]**; IFB Automotive Private Ltd., #16 Vishweswaraiah Industrial Estate, Mahadevapura, 560 048 Bangalore (IN). **RAJAGOPAL, Kesavan [IN/IN]**; IFB

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: **TWIN RECLINER FOR AUTOMOTIVE SEATS**



(57) **Abstract:** The present invention provides a twin recliner operable manually for permitting selective position of a seat back with respect to the seat cushion through a range of reclined positions to a selected use position. Said twin recliner comprising: a master and a slave recliner, a shaft arm member with a longitudinal cleavage on one side and a plurality of peripheral stepping arrangement on the other side, an external spring means with one end hooked to the lower portion of the activating lever and the other end locked to the longitudinal cleavage of the shaft to facilitate a nominal return rate of the actuating lever, a rotatable cam mounted on the third of said plurality of stepping arrangement having a projection is engaged with the slot of the lower housing to receive a rotary drive directly from the actuating lever to disengage and engage inner sectors, a guiding plate with a central passage mounted on the fourth of the stepping arrangement of the shaft member to provide a synchronized movement of the inner sectors.

WO 2004/103764 A1